NOVEMBER/DECEMBER 2024

23UDA21 — DATA STRUCTURE AND ALGORITHM

Time : Three hours Maximum : 75 marks

SHANMUGA INDUSTRIES ARTS & SCIENCE COLLEGE LIBRARY

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What is an array?
2. Define Priority Queue.
3. Difference between Binary Tree and Binary Search Tree.
4. Enumerate the principles governing the minimum cost spanning tree problem.
5. List out the advantages and disadvantages of Bubble Sort.
6. Write about binary search Technique.
7. How does the greedy method works in Problem-solving?
8. What is the complexity of a multistage graph?
9. Define the traveling salesman problem.
10. What do you mean by backtracking?

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Evaluate the given expression $X = A / B^{**} C + D^{*} E - A^{*} C$.

Or

(b) Illustrate Asymptotic notations in detail.

12. (a) Write a short note on Binary Tree Traversal techniques.

Or

(b) Discuss the different types of graph representations.

13. (a) Write a short note on Merge Sort with example?

Or

(b) Describe about linear search technique with example.

14. (a) Deliberate Job Sequencing with deadline Problem with Example.

Or

(b) Write about single source shortest path algorithm.

15. (a) Enumerate the Graph Coloring Problem.

Or

(b) How a graph can be represented? Explain Briefly.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Discuss the Doubly linked list operations in detail.

17. Illustrate the MST Shortest path algorithms with neat sketch.

18. What is the need of Quick sort? Give an example to illustrate the Quick Sort algorithm.

19. Describe DFS and biconnected components in detail.

20. Explain 8-queens problem with an example.

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